UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,273	03/25/2004	Christopher Brockett	M61.12-0618	2161

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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 November 2008*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,16-19,22 and 23* is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-7,16-19, 22, and 23* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
         application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

U.S. Patent and Trademark Office
PTOL-326 (Rev. 08-06)   Office Action Summary   Part of Paper No./Mail Date 20081210

DETAILED ACTION

1.   This communication is in response to the RCE filed on 11/11/2008. Claims 1-7, 16-19, 22, and 23 remain pending, while claim 23 has been newly added. All claims have been examined. The Applicants' amendment and remarks have been carefully considered, but they do not place the claims in condition for allowance.

2.   All previous objections and rejections directed to the Applicant's disclosure and claims not discussed in this Office Action have been withdrawn by the Examiner.

Continued Examination Under 37 CFR 1.114

3.   A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/11/2008 has been entered.

Response to Arguments

4. Applicant's arguments (pages 6-10) filed on 11/11/2008 with regard to claims 1-7,16-19, 22, and 23 have been fully considered but they are moot in view of new grounds for rejection. See below for the newly added limitation. Hence, a new reference was applied.

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Response to Amendment

5. Applicants' amendments filed on 11/11/2008 have been fully considered. The newly amended limitations in claims 1, 16, and 23, necessitate new grounds of rejection. Specifically, the newly added limitation of "generating a transliterated output corresponding to the set of word pairs; wherein the method of training the transliteration processing does not use pronunciation information" necessitates new grounds for rejection.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1, 16, and 23 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent[1] and recent Federal Circuit decisions[2] indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not

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[1] *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

[2] *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

qualify as a statutory process. For example, transliteration method including steps of receiving, using, identifying, and generating is of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine. The Applicant has provided no explicit and deliberate definitions of " "receiving", "using", "identifying", and "generating" to limit the steps to the sets of steps being performed by a processor and the claim language itself is sufficiently broad to read on a human receiving pairs of words and aligning characters to the words and, recalling *In re Bilski,* and the person generating a transliterated output of word pairs.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claims 1, 5-7, 16-19, and 22 are rejected under 35 U.S.C. 102(a) as being anticipated by AbdulJaleel *et al.* ("Statistical Transliteration for English-Arabic Cross Language Information Retrieval"), hereinafter, AbdulJaleel.

As to claim 1, AbdulJaleel *et al.* teaches a method of training a transliteration processing system, comprising:

receiving a set of word pairs from different languages (see page 140, right column, sect. 3, 3rd full paragraph, "model trained on list of proper name pairs in English and Arabic")and

using statistical textual alignment to align characters of each of the word pairs (see page 141, left column, bullet 5, "GIZA was used to align the English and Arabic training word pairs"); and

identifying the transliteration relationships based on the characters (see page 141, left column, bullet 6, transliteration model built based on alignments); and

generating a transliterated output corresponding to the set of word pairs (see page 144, left column, paragraphs underneath bullet 6, where the generation of Arabic transliteration for an English word);

wherein the method of training the transliteration processing does not use pronunciation information (see sect. 3, no pronunciation information is taken into consideration rather the alignment based on conditional probabilities of characters).

As to claim 5, AbdulJaleel. teaches,

calculating an alignment model based on the transliteration relationships identified (see page 140, right column, 1st paragraph and 3rd paragraphs, where two alignment stages and a probability is associated each mapping character and bullet 6 on page 141).

As to claim 6, AbdulJaleel teaches,

receiving an input text (see page 141, right column, sect. 4.1, 1st and 3rd paragraph, where a test list of 815 words are input); and

generating a transliteration of the input text (see page 141, right column, sect. 4.1, 3rd paragraph all possible transliterations of the test words based on the model is produces)

As to claim 7, AbdulJaleel teaches wherein calculating the alignment model based on the transliteration relationships identified includes

using the context supplied by neighboring characters (see page 140, sect. 3, right column, 1st paragraph, n-gram of English and Arabic characters are used, where in page 142, sect. 4.1.3, under Table 4, context is provided by the n-grams.

As to claim 16, AbdulJaleel *et al.* teaches a method of training a transliteration processing system, comprising:

receiving a set of word pairs from different languages (see page 140, right column, sect. 3, 3rd full paragraph, "model trained on list of proper name pairs in English and Arabic")and

using statistical textual alignment to align characters of each of the word pairs (see page 141, left column, bullet 5, "GIZA was used to align the English and Arabic training word pairs") wherein aligning at least one character of one of the words of a word pair with a null character of the other word of the word pair

(see page 140, right column, sect. 3, 4th paragraph, "align with NULL such silent characters as final *e*) ; and

identifying the transliteration relationships based on the characters (see page 141, left column, bullet 6, transliteration model built based on alignments); and

generating a transliterated output corresponding to the set of word pairs (see page 144, left column, paragraphs underneath bullet 6, where the generation of Arabic transliteration for an English word);

wherein the method of training the transliteration processing does not use pronunciation information (see sect. 3, no pronunciation information is taken into consideration rather the alignment based on conditional probabilities of characters).

As to claim 17, AbdulJaleel *et al.* teaches

using statistical textual alignment (see page 140, right column, sect. 3, 3rd paragraph, alignments use GIZA++, which uses probabilities) to align characters of each of the word pairs (see page 140, right column, sect. 3, 3rd paragraph, 4th paragraph, character level alignment)

As to claim 18, AbdulJaleel. teaches,

calculating an alignment model based on the transliteration relationships identified (see page 140, right column, 1st paragraph and 3rd paragraphs, where

two alignment stages and a probability is associated each mapping character and bullet 6 on page 141).

As to claim 19, AbdulJaleel teaches wherein calculating the alignment model based on the transliteration relationships identified includes

using the context supplied by neighboring characters (see page 140, sect. 3, right column, 1st paragraph, n-gram of English and Arabic characters are used, where in page 142, sect. 4.1.3, under Table 4, context is provided by the n-grams.

As to claim 22, AbdulJaleel. teaches

wherein aligning at least one character of one of the words of a word pair with a null character of the other word of the word pair (see page 140, right column, sect. 3, 4th paragraph, "align with NULL such silent characters as final e") ;

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 2-4 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over AbdulJaleel in view of Lee et al. ("Acquisition of English-Chinese Transliterated Word Pairs from Parallel-Aligned Texts using a Machine Transliteration Model), hereinafter, Lee.

As to claim 2, AbdulJaleel teaches all of the limitations as in claim 1, above. Furthermore aligned word-pairs (see page 140, right column, sect. 3, 3rd paragraph, proper name pairs in English and Arabic and see page 141, left column, bullet 2).

However, AbdulJaleel does not specifically teach using statistical alignment to align words in parallel sentences to form a set.

Lee does teach using statistical textual alignment to align words in parallel sentences to form a set (see page 99, left column, sec. 3, 2nd paragraph and Figure 3) (e.g. A statistical alignment is used to align the words in the parallel sentences in page 99, right column, 1st full paragraph, DP approach).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the statistical transliteration as taught by AbdulJaleel with the textual alignment of sentence to obtain word pairs as taught by Lee for the purpose of identifying optimal word pairs in the parallel text for transliteration to occur (see Lee, as would be beneficial to the method of AbdulJaleel (page 99, right column, 1st full paragraph, DP approach).

As to claim 3, AbdulJaleel in view of Lee *et al.* teaches all of the limitations as in claim 2, above.

Furthermore, Lee teaches identifying aligned word pairs from the set of sentences (see page 99, Figure 3, and left column, 2nd paragraph) (e.g. Identification of aligned pairs (proper names) is carried out using DP as mentioned in page 99, right column, 1st full paragraph, DP approach)).

As to claim 4, AbdulJaleel in view of Lee et al. teaches all of the limitations as in claim 3, above.

Furthermore, AbdulJaleel teaches using transliteration models for generating Arabic transliterations from an English word (See page 140, right column, sect. 3, 1st paragraph).

Furthermore, Lee et al. teaches using the transliteration relationships to identify additional word pairs from the set of sentences (see page 98, right column, steps 1-page 99, left column, steps 2 and 3) (e.g. From the cited section parameters are estimated depending on the word pairs found in the training set. Hence, it is evident that transliteration relationships are used based upon parameters found during training and then applied to the word pair).

.   As to claim 23, AbdulJaleel teaches a computer-implemented method of training a transliteration processing system, comprising:

using at least one selected word pair to develop a transliteration model comprising character alignment (see page 141, left column, bullet 5, "GIZA was used to align the English and Arabic training word pairs"); and; and

outputting the transliteration model corresponding to the selected word

pair (see page 140, left column, 3rd paragraph, output of transliterator were

compared to other methods);

wherein the method of training the transliteration processing system does

not use pronunciation information (see sect. 3, no pronunciation information is

taken into consideration rather the alignment based on conditional probabilities of

characters).

However, AbdulJaleel does not specifically teach accessing parallel text,

identification of an aligned sentence, selection of candidate bilingual word pairs

and outputting the word pair.

Lee does teach

accessing a database of parallel texts (see page 99, Figure 3, and see

sect. 3, left column, 1st paragraphs, parallel corpus)

identifying an aligned sentence pair from the database (see page 99,

Figure 3, sentence alignment and sect. 3, 2nd paragraph, sentence alignment

procedure for the parallel text.);

selecting candidate bilingual word pairs from the aligned sentence (see

page 99, Figure 3, word extraction and see page 99, right column, 1st full

paragraph, DP approach to find candidate word pairs);

outputting the aligned word pair (see page 102, Table 1, underlined

entries and see page 99, right column, source and target sentence underlined

sentences (e.g. It would have been obvious to one skilled in the art to output the

word pairs as seen in page 99, right column, 1st full paragraph, Whitehead

Chinese equivalent and transliterated output huaihaite.).

. It would have been obvious to one of ordinary skilled in the art at the time

the invention was made to have modified the statistical transliteration as taught

by AbdulJaleel with the textual alignment of sentences from parallel corpora to

obtain word pairs as taught by Lee for the purpose of identifying optimal word

pairs in the parallel text for transliteration to occur (see Lee, as would be

beneficial to the method of AbdulJaleel (page 99, right column, 1st full paragraph,

DP approach).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

O'Donoghue (US 5,8647,811) is cited to disclose aligning corpora. Hetherington

et al. (US 6,460,015) is cited to disclose character transliteration in a text string object.

Moore (US 2002/0198701) is cited to disclose statistical method for learning translation

relationships.

Jung et al. ("An English to Korean Transliteration Model of Extended Markov

Window") is cited to disclose transliteration of English and Korean languages.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to PARAS SHAH whose telephone number is (571)270-

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1650. The examiner can normally be reached on MON.-THURS. 7:00a.m.-4:00p.m.

EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Patrick Edouard can be reached on (571)272-7603. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Paras Shah/
Examiner, Art Unit 2626

01/10/2009

/Patrick N. Edouard/

Supervisory Patent Examiner, Art Unit 2626